

II. Remarks

Reconsideration and re-examination of this application in view of the above amendments and the following remarks is herein requested. Claims 1-3, 5, 7, 9-13, 16, and 17 are pending in the application. Claims 4, 6, 8, 14, and 15 have been cancelled, and claims 12, 13, 16, and 17 have been withdrawn. Claims 1 and 7 have been amended, and no claims have been added. Support for the above amendments may be found in Applicants' specification as originally filed.

Rejections Under 35 U.S.C. § 103

Claims 1-3, 5, 7, and 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pub. No. 2005/0149240 to Tseng et al. (Tseng), in view of U.S. Pat. No. 6,732,033 issued to LaPlante et al. (LaPlante). This rejection is respectfully traversed.

Applicants respectfully assert that Tseng and LaPlante, even in combination, fail to teach each and every element of the claimed invention. For example, independent claim 1, from which claims 2, 3, 5, 7, and 9-11 depend, includes first and second linear accelerometers configured to measure acceleration in a first direction and third and fourth linear accelerometers configured to measure acceleration in a second direction, and further, claim 1 includes a signal adjuster configured to transform the measured vehicle state signals from a sensor coordinate system to a body coordinate system.

Tseng discloses a system for controlling a safety system of a vehicle with multiple sensors (p.2, para. [0025]). A lateral acceleration sensor 32 measures the acceleration of a vehicle in a first direction, a vertical acceleration sensor 35 measures the acceleration of the vehicle in a second direction, and a longitudinal

acceleration sensor 36 measures the acceleration of the vehicle in a third direction (pp. 3-4, paras. [0042] – [0043]). The Examiner has stated, and Applicants agree, that Tseng does not disclose two accelerometers measuring acceleration in a first direction and two other additional accelerometers measuring acceleration in a second direction.

Applicants respectfully assert that LaPlante also lacks any teaching, suggestion, or disclosure of first and second accelerometers configured to measure acceleration in a first direction and third and fourth accelerometers configured to measure acceleration in a second direction. Although LaPlante has first and second accelerometers 20, 22 configured to measure acceleration of the Sprung Mass (SM) and Unsprung Mass (USM) in a z-direction, LaPlante does not teach more than one accelerometer configured to measure acceleration in a second direction. LaPlante states that “accelerometers in the x and y directions” may be provided (Col. 6, lines 38-41). Thus, there could be an accelerometer in the x direction and one in the y direction; in other words, LaPlante does not disclose that there would be more than one accelerometer in either of the x or y directions. Furthermore, LaPlante explains the additional accelerometers in greater detail in Column 10, wherein LaPlante states: “the accelerometer associated with the sprung mass may be adapted to also detect acceleration in the x and y directions, or alternatively additional sensors may be included in the system 10 of FIG. 1 to generate these additional acceleration signals in the x and y dimension.” (Col. 10, lines 28-33). Therefore, it is clear that LaPlante discloses only one accelerometer to measure acceleration in the x direction, one accelerometer to measure acceleration in the y direction, and two accelerometers 20, 22 to measure acceleration in the z direction. As such, LaPlante,

like Tseng, fails to disclose third and fourth accelerometers configured to measure acceleration in a second direction, as recited in the claims of the present invention.

In addition to the above, Tseng and LaPlante in combination also fail to teach, suggest, or disclose a signal adjuster configured to transform the measured vehicle state signals from a sensor coordinate system to a body coordinate system. The Examiner has stated that Tseng teaches such limitation in sections 0025-0030, 0046-0050). However, these sections show that Tseng's accelerometers measure acceleration along the body coordinate system in the first, and therefore, the acceleration signals are not converted from a sensor coordinate system to a body coordinate system. For example, Tseng states: "As one skilled in the art will recognize, the frame from b_1 , b_2 , and b_3 is called a body frame 22, whose origin is located at the center of gravity of the car body, with the b_1 corresponding to the x axis pointing forward, b_2 corresponding to the y axis pointing off the driving side (to the left), and the b_3 corresponding to the z axis pointing upward.... The angular rate sensors and the accelerometers are mounted on the vehicle car body along the body frame directions b_1 , b_2 , and b_3 ; which are the x-y-z axes of the vehicle's sprung mass." (p. 2, secs. 0025-0026). Since Tseng's accelerometers measure acceleration along the body coordinate system, Tseng's system does not need a signal adjuster configured to transform the measured vehicle state signals from a sensor coordinate system to the body coordinate system, and as such, Tseng does not teach, suggest, or disclose such a signal adjuster.

LaPlante also fails to teach such limitation in its written description and figures. Like Tseng, LaPlante teaches mounting the accelerometers 20, 22 such that the measuring directions of the accelerometers 20, 22 are located along the body coordinate system to measure acceleration in the z direction, and therefore,

LaPlante does not teach a signal adjuster configured to transform the measured vehicle state signals from a sensor coordinate system to the body coordinate system.

In view of the foregoing, Applicants respectfully submit that even if Tseng and LaPlante were properly combinable, Tseng and LaPlante in combination fail to teach each and every element of the present invention, as set forth in claim 1. Accordingly, Applicants respectfully submit that independent claim 1, and claims 2, 3, 5, 7, and 9-11 dependent therefrom, are in condition for allowance, for at least these reasons. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

SUMMARY

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot, and that pending claims 1-3, 5, 7, 9-13, 16, and 17, as amended, are patentable. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned at (734) 302-6000.

Respectfully submitted,

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Date

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